



**THE
AUSTRALIAN
HERPETOLOGICAL
SOCIETY
JOURNAL**

THE AUSTRALIAN HERPETOLOGICAL SOCIETY

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COVER - Common Brown Snake (*Pseudonaja textilis t.*)
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AREA SURVEY OF REPTILES IN THE OUTER
NORTH-EASTERN BRISBANE SUBURBS

:- Geebung, Wavell Heights, Virginia, part Zillmere and Boondall.

B. Lyon - July, 1972.

DESCRIPTION OF AREA: Flat, low lying area characterised by a swampy nature and bisected by Downfall Creek - a sluggish narrow, meandering stream in the lower part of its middle tract. It is situated approximately 4 miles west of Moreton Bay and 4-8 miles N.N.E. of the city centre.

The area is comparatively unsettled and there are sections of bush presently unoccupied.

In some places man has intervened and dumped rubbish such as concrete and iron and this has provided the local fauna with new homesites. He has also cleared the area of much of its original vegetation.

The main vegetation types are as follows:- Patches of stunted Eucalyptus sp., scrub, Ti-Tree Swamps, Open Swampy Areas and cleared grass areas. A type of shrub growing to a height of 15 inches is found over most of the area and in some places grows in thickets. The grass may be in short clumps or long and thick (from 3-8 inches high depending upon the season).

The soils are mostly infertile, the dominant type being a white powdery (when dry) clay which stunts vegetation.

The area is not subject to flooding although during the wet season some places may be inundated to a depth of several inches.

No rock outcrops occur.

SPECIES FOUND: A total of 25 species of reptiles have been found by my friends and myself after 3 years intensive collecting. I am fairly confident that we have found all the species that occur in the area. The only exception could be the Small Eyed Snake (*Denisonia nigrescens*) which has been collected as close as Strathpine - 4 miles away.

Listed below is each species that has been found, accompanied with notes concerning its habitat, abundance and anything else of interest:-

Dendrelaphis punctulatus - Green Tree Snake: Common. In trees (sometimes in small colonies), under sheet iron. Creek margins and swamps.

Amphiesma (Natrix) mairii - Water Snake: Abundant - Creek margins, lagoons, swamps and adjacent areas. Under concrete, sheet iron, planks and other debris. Approximately 170 different specimens have been collected to date.

Demansia psammophis - Yellow Faced Whip Snake: Common in open grassy areas and open scrubby country. Found under sheet iron, fibro, concrete, rocks, planks and logs.

Denisonia signata - Swamp Snake: Uncommon, found in grass areas adjacent to drains.

Cacophis harriettae - White Naped Snake: Uncommon, under concrete in short grass areas.

Aspidomorphus squamułosus - Golden Crowned Snake: One specimen collected 4 years ago in grass area adjacent to drain. It is doubtful whether any more remain in the district.

Pseudechis porphyriacus - Black Snake: Once common in district, now very rare. Found in areas adjacent to creek.

Ctenotus leseueri - Bush Skink: Abundant, under tin and concrete in open grassy areas. Uncommon - common in other areas.

Sphenomorphus taeniolata - Copper tailed Skink: Common in some urbanised areas.

Sphenomorphus quoyii - Water Skink: Common along creek course and adjacent areas.

Sphenomorphus tenuis - 2 specimens found in old shed.

Tiliqua scincoides. - Common Bluetongue: Uncommon, under sheet iron and other debris in grass areas. Six specimens found.

Leiolopisma guichenoti - Grass Skink: Common - abundant all areas.

Ablepharus boutonii - Fence Skink: Common in timbered areas.

Lygosoma verreauxii - Under logs or in decomposing vegetation usually in rich soil areas.

Lygosoma scutirostrum - Common, abundant in white soil areas. Under logs, rocks and concrete. Found mostly in winter.

Carlia vivax - Uncommon - common in short clump grass areas.

Amphibolurus barbatus - Bearded Dragon: Uncommon - common, in timbered areas.

Diporiphora sp. - Two Lined Dragon: On or under logs, tin, or concrete usually in scrubby country.

Physignathus lesueueri - Water Dragon: Common along creek course especially at bridges.

Lialis burtonis - Sharp Snouted Lizard: Uncommon - common in certain open scrubby areas. Under sheet iron and in grass.

Delma sp. Uncommon - Common. Under sheet iron, logs in white soil areas, grassland or scrub.

Chelodina longicollis - Long Necked Tortoise: Uncommon to common along creek course and marginal areas.

Elseya latisternum - Saw Shelled Tortoise: Uncommon - common along banks of creeks. Mostly juveniles found.

Emydura macquarrii - Short Necked Tortoise: Uncommon - common along banks of creeks. Mostly juveniles found.

The following people helped in collecting: B. Hannan, A. Merritt, T. Low, J. MacPherson, B. Warner, D. Maynard and R. & S. Jamieson.

CAPTIVITY OBSERVATIONS OF SOME AUSTRALIAN
LEGLESS LIZARDS

by K. Martin

The Pygopods, or legless lizards are probably our least understood group of reptiles.

Sixteen species and sub-species of legless lizards have been recorded from all parts of Mainland Australia and New Guinea, and they have penetrated nearly every possible habitat. Captive observations of 6 species kept by me have turned up some interesting and diverse facts about these reptiles' habits.

I have successfully kept 2 species of *Delma* (*fraseri* and *impar*) in a small outdoor pit in Sydney, and have found, under these conditions, that they are strictly diurnal. On every sunny day, these specimens were observed basking on the ground or moving about. Although not truly arboreal, they are adept climbers, and will climb to the top of any bush that was in the pit. They generally slept at night curled up in the branches of a small plant, in preference to hiding under rocks or bark.

Two other species I have kept are the Worm Lizards (*Aprasia striolata* and *pulchella*). Both species are fairly similar, except that *pulchella* is slightly more thickset. I kept mine in an aquarium with about 3" of sandy leaf litter in the bottom. Although most pygopods will drink from a water dish, these lizards were quite happy to have the bottom layer of soil moist. These specimens were also observed to be diurnal, although were partly nocturnal, and of an early morning were always basking in the sun. Their underground activity could not be observed.

These lizards, as well as the *Delmas*, can also be quite vocal. *Delma impar* and *Delma fraseri* can, when alarmed, emit high-pitched squeals which they can sustain for up to about 15 seconds at a time. The *Aprasia* lizards, when disturbed, will jump about frantically and produce a series of short, high-pitched "yip-yip".

Whereas the previously mentioned species were collected in Victoria and South Australia, the last 2 species I have studied are from Sydney. These are Burton's Legless (*Lialis burtonis*) and the Common Scalyfoot (*Pygopus lepidopodus*). In Sydney, Burton's is almost wholly diurnal, and one I caught was basking on an exposed sandy track at midday, in about 80 degrees heat.

The Scalyfoot is partly diurnal, and partly nocturnal. In captivity, it was mostly active during the late afternoon.

It is generally accepted that the legless lizards are insect eaters, except for Burton's, which also feeds on small skinks. However, of the species I kept, all (except Burton's) are very partial to soft fruits (especially banana), and eat them in the same manner as a skink would. I supplemented their diet with insects, and in the case of the Worm Lizards, regularly changed the soil when the insect content was low.

It is pointed out that the above observations only apply to a handful of specimens of each species, and may not apply generally for the same race in different parts of Australia.

* * * * *

COMPETITION RESULTS

Seven entries were received for the competition. The Judge, Dr. H. Cogger recommended that the Award be shared by two papers, both of which provided a high proportion of specific, original information which many readers can put to good use.

The Awards were made to:-

Miss J. Tilbrook of Melbourne - "Ulcerative Stomatitis"

Mr. B. Lyon of Brisbane - "Area Survey of Reptiles in the Outer North-Eastern Brisbane Suburbs".

Entries for the next competition close on 15th April, 1973. There will be an Award of \$25.00 to the winner(s).

THE EUROPEAN POND TORTOISE - EMY'S ORBICULARIS
(Linnaeus 1758)

PART II

by A.J. Zwinenberg

FOOD

Emys orbicularis is an exclusive meat-eater. Its food is mainly caught in the water; being a strong swimmer it is able to overhaul small fish and catch them. It also feeds on worms, snails, frogs, water-insects, salamanders, tadpoles and insect-larvae. Small food-animals are caught by a swift head-movement and swallowed. Larger prey is however, after being caught by the mouth, grasped with the front legs and torn into pieces by the sharp horny jaws. Prey caught on land is usually taken into the water before being eaten. The Pond Tortoise hunts its prey mainly during the nights and spends its days asleep in the sun.

REPRODUCTION

The mating-season commences soon after the Pond Tortoise emerges from hibernation, usually around May. The actual mating which has been observed as late as September, is initiated by the male, which swims around the female and tries to arouse her by bites in the legs. The male then climbs on her carapace and hangs on with his legs. The pair will remain like this for hours, the female carrying the male wherever she goes. Females sometimes continue feeding. Mating takes place mainly in the water but in some instances on land.

Sometime after mating, towards the end of May or beginning of June the female leaves the water and scoops out a hollow in a soft bank, using her hind legs and lays her eggs. After depositing the 3 to 16 eggs in the hollow she fills it with sand and presses the soil with her plastron. She then returns to the water and has no further interest in her brood.

Initially the eggs are soft shelled which however due to exposure to the air gradually harden up. Dependent upon such circumstances as humidity and temperature of the surroundings, the young leave the eggs in August or September or even in late autumn or next spring. The shell is pierced with the egg tooth situated on the tip of the upper jaw. This tooth drops off shortly after hatching.

On hatching the juveniles are a deep dark green colour on top and measure 2 to 3 cm; they soon look for water to commence their secretive way of life. Young born in captivity were found to have at the age of 2 years, a carapace measuring 7 cm. The juveniles had to be kept out of reach of adults as these seem to regard them as highly desirable prey. The Pond Tortoise is sexually mature at the age of 7 and reaches an age of 30 to 40 years old - according to some even older.

CAPTIVITY

Although their numbers are decreasing, the Pond Tortoise is still quite common in the southern (European) regions. Every year, regrettably, many thousands are caught and distributed throughout the world. They are easy to keep in captivity if their great need for sunshine and warmth is provided. They are best kept outdoors. It is absolutely essential that the water in which they spend most of their lives, is changed regularly. Polluted water causes all sorts of diseases and shell troubles. The water level should not be more than 3 to 5 cm above the carapace.

If the animals are kept in an indoor vivarium a land area can be created by using stones where they can rest out of the water. The Pond Tortoise should not be kept with possible prey animals as *Emys orbicularis* is a voracious eater and shows a well developed hunting instinct. Many smaller or animals of equal size are not safe from its sharp jaws.

KEYS TO THE FROGS AND REPTILES OF THE CENTRAL COAST OF NEW SOUTH WALES

PART II LIZARDS AND SNAKES *

BY HAROLD COGGER

1. Obvious limbs present, each with distinct digits, even if sometimes small..... 2
Limbs absent, or present only as scaly flaps without distinct digits..... 34
2. Feet with digits distinctly expanded at their tips to form flattened pads..... 3
Feet with simple claws which are not expanded to form pads..... 5
3. Outer lamellae under toes (excluding an enlarged outer pair) divided..... 4
Outer lamellae under toes (excluding an enlarged outer pair) single..... Diplodactylus vittatus (Wood Gecko)
4. A continuous, broad, light-coloured vertebral stripe enclosed on each side by a darker, zig-zag stripe..... Oedura lesuerii (Lesueur's Velvet Gecko)
A dark dorso-lateral band on each side, joined by five or six transverse bars so as to enclose a series of large, light-coloured dorsal blotches..... Oedura robusta (Robust Velvet Gecko)
5. Eyes without moveable eyelids..... 6
Eyes with moveable eyelids..... 9
6. Scales not overlapping, not shiny; tail not much longer than broad..... 7
Scales overlapping, smooth, shiny; tail long and slender..... 8
7. Tail very flat, leaf-shaped, more than twice as broad as thick; body grey or brown with darker flecks..... Phyllurus platurus (Southern Leaf-tailed Gecko)
Tail not very flat, less than twice as broad as thick; body black or brown with numerous small white or cream spots..... Underwoodisaurus milii (Barking Gecko)

* The author would be grateful for any records, from central coastal N.S.W., of any species not listed in these keys.

8. Forelimb with five fingers *Cryptoblepharus boutonii* (Bouton's Snake-eyed Skink)
 Forelimb with only four fingers *Ablepharus bimaculatus* (Four-fingered Snake-eyed Skink)
9. Head covered with small, irregular scales..... 10
 Head covered with large, symmetrical shield-like scales..... 16
10. Tongue long, narrow, deeply forked like that of a snake;
 regularly protruded when lizard is alert..... 11
 Tongue broad, flat and with only a slight notch in front;
 not normally protruded except when eating or drinking..... 12
11. Scales of tail arranged in regular rings, an occasional
 ring incomplete on the side of the tail..... *Varanus gouldii* (Sand Goanna)
 Scales of tail not arranged in regular rings, those below
 being much larger than those above..... *Varanus varius* (Lace Monitor)
12. Femoral and preanal pores present; no median row of
 enlarged spiny scales on the throat; two or more distinct
 dorsal rows of enlarged scales..... 13
 Femoral and preanal pores absent; a row of small but distinct
 spiny scales down the centre of the throat; a single dorsal
 row of enlarged scales forming a vertebral crest..... *Gonocephalus spinipes* (Southern Forest Dragon)
13. Tail round in section with a dorsal keel, if present, restricted
 to the base of the tail..... 14
 Tail distinctly flattened vertically, with a dorsal keel along
 most of its length..... *Physignathus lesuerii* (Eastern Water Dragon)
14. Base of tail with enlarged, spinose scales..... 15
 Base of tail without enlarged spinose scales..... *Amphibolurus muricatus* (Jacky Lizard)
15. A series of enlarged spinose scales in a short row on either
 side of the base of the tail..... *Amphibolurus diemensis* (Mountain Dragon)
 Enlarged spinose scales on base of tail irregularly scattered
 on top and sides..... *Amphibolurus barbatus* (Bearded Dragon)
16. Parietal shields not in contact behind the interparietal shield..... 17

- Parietal shields in contact behind the interparietal shield..... 24
17. Third toe scarcely longer than fourth..... 18
- Fourth toe markedly longer than third..... 21
18. Tail much shorter than the body..... 19
- Tail almost as long as or longer than the body..... 20
19. Anterior temporal scales enlarged, much longer than broad;
body with darker cross-bands..... Tiliqua scincoides (Eastern Blue-tongue Lizard)
- Anterior temporal scales not noticeably enlarged, scarcely
longer than broad; body blackish with a series of pink or
orange blotches..... Tiliqua nigrolutea (Blotched Blue-tongue Lizard)
20. Head quite distinct from the neck; more than 28 mid-body
scale rows..... Tiliqua gerrardii (Pink-tongue Skink)
- Head scarcely distinct from the neck; 28 or fewer
mid-body scale rows..... Tiliqua casuarinae (Oak Skink)
21. Scales smooth or nearly so..... 22
- Scales very rough and spiny, especially on the tail..... Egernia cunninghami (Cunningham's Skink)
22. No expanded upper caudal scales on the base of the tail..... 23
- A series of expanded upper caudal scales on the base of
the tail..... Egernia saxatilis (Black Rock Skink)
23. A distinct white or cream, dark edged streak along the
upper labials; body with distinct pattern of light, dark
edged spots or stripes..... Egernia whitii (White's Skink)
- No light, dark-edged streak through the upper labials;
body usually without pattern, except for a few light
spots on the sides..... Egernia modesta (Immaculate Skink)
24. Limbs very short, widely separated when adpressed;
limbs each with only three digits..... 25
- Limbs long, meeting or overlapping when adpressed; limbs
each with five digits..... 26

25. Lower eyelid scaly, without a transparent disc; one loreal scale between nasal and preocular; at most one or two lamellae under the third toe..... *Salphos equalis* (Three-toed Skink)
 Lower eyelid with a transparent or translucent disc; two loreal scales between nasal and preocular; four or more lamellae under the third toe..... *Hemiergis decessensis* (Montane Three-toed Skink)
26. Lower eyelid scaly..... 27
 Lower eyelid with a transparent or translucent disc..... 30
27. Anterior ear lobules present; a series of dorsal stripes..... 28
 Anterior ear lobules absent; at most a light dorso-lateral stripe, without any stripes between..... 29
28. Pattern consists entirely of more or less uninterrupted stripes; tail usually rich reddish-brown or copper-coloured..... *Ctenotus taeniatus* (Copper-tailed Skink)
 Side with a longitudinal row of short light-coloured dots from the eye to the groin..... *Ctenotus lesueuri* (Striped Skink)
29. A narrow light, straight-edged dorso-lateral streak from above the eye to the level of the shoulder or beyond; upper sides black with fine white spots; base of fourth toe noticeably swollen, with two or more lamellae..... *Sphenomorphus quoyii* (Water Skink)
 No narrow light, straight-edged dorso-lateral streak from above the eye; upper sides blackish broken into a series of irregular blotches; base of fourth toe not noticeably swollen..... *Sphenomorphus tenuis* (Barred-sided Skink)
30. Frontoparietals united to form a single shield..... 31
 Frontoparietals paired..... *Leiolopisma mustelina* (Weasel Skink)
31. Suture between the rostral and frontonasal much narrower than the frontal..... 32
 Suture between the rostral and frontonasal about as broad as the frontal..... 33
32. Black lateral stripe bordered above and below by narrower, lighter stripes; dorsal pattern with distinct darker stripes..... *Leiolopisma trilineata* (Three-lined Skink)

- Black lateral stripe not bordered by lighter stripes;
dorsal pattern without distinct stripes.....*Leiopisma platynotum* (Red-throated Skink)
33. Usually an indefinite dark vertebral stripe; a dark lateral band bordered below by a well-defined narrower band which is lighter in colour than the dorsal surface.....*Leiopisma guichenoti* (Grass Skink)
- No dark vertebral stripe; dark lateral band not bordered below by a well-defined narrow light-coloured band.....*Leiopisma delicata* (Fence Skink)
34. Ear-opening present.....35
Ear-opening absent.....36
35. Head wedge-shaped; head covered above by small irregular scales.....*Lialis burtonis* (Burton's Snake-Lizard)
Head rounded, not wedge-shaped; head covered above by large symmetrical shields.....*Pygopus lepidopodus* (Common Scaly-foot)
36. No enlarged ventral scales; worm-like burrowing forms.....37
Enlarged ventral scales present.....38
37. Eyes small but well-developed, with moveable lids; top of head covered with enlarged symmetrical shields.....*Saiphos* sp. (Southern Lioboss Skink)
Eyes vestigial, each reduced to a black spot of pigment beneath the scales of the head, without lids; top of head covered with only slightly enlarged scales.....*Rhamphotyphlops nigrescens* (Eastern Blind Snake)
38. Head covered by enlarged, symmetrical shields; fewer than 30 mid-body scale rows.....39
Head covered by small, irregular scales; more than 30 mid-body scale rows.....*Morelia spilotes* (Diamond Snake)
39. A loreal scale present between the nasal and preocular.....40
No loreal shield present.....41
40. 15 or fewer mid-body scale rows; head slender, scarcely distinct from neck; pupil round.....*Dendrelaphis punctulatus* (Green Tree Snake)

- 13 or more mid-body scale rows; head broad, very distinct from neck; pupil vertical..... Boiga irregularis (Brown Tree Snake) 41
41. Body slender; no subocular scales separating the eye from the supralabials..... 42
- Body short, broad; a series of subocular scales separating the eye from the supralabials..... Acanthophis antarcticus (Death Adder) 42
42. Scales in 21 rows or more at mid-body; ventral scales with distinct lateral keels..... 43
- Scales in fewer than 21 rows at mid-body; ventral scales without keels..... 45
43. Body spotted or banded; no light-coloured patch on the nape..... 44
- Body without spots or bands; a light-coloured patch on the nape immediately behind the parietal shields Hoplocephalus bitorquatus (Pale-headed Snake) 44
44. Body banded with black and yellow (or brown); the light bands average at least two scales in width..... Hoplocephalus stephensi (Stephen's Banded Snake) 45
- Body black with numerous scattered yellow or white scales which, where they form cross-bands, are never more than one scale in width..... Hoplocephalus bungaroides (Broad-headed Snake) 45
45. All subcaudals single..... 46
- At least some subcaudals divided..... 52
46. Anal single..... 47
- Anal divided..... Hemiaspis signata (Black-bellied Sharp Snake) 47
47. Scales in 15 rows at mid-body..... 48
- Scales in 19 rows at mid-body..... Notechis scutatus (Tiger Snake) 48
48. Frontal less than one and a half times as broad as a supracocular..... 49
- Frontal more than one and a half times as broad as a supracocular..... 51

49. Supralabials not alternately barred with yellow and dark brown..... 50
- Supralabials alternately barred with yellow and dark brown..... Austrelaps superba (Copperhead)
50. A light yellowish band across the nape..... Drysdalia mastersi (Montane Yellow-naped Snake)
- No light band across the nape..... Drysdalia coronoides (White-lipped Snake)
51. Body uniform steely black above..... Unechis nigrescens (Small-eyed Snake)
- Body brown, head black..... Unechis gouldii (Black-headed Snake)
52. Mid-body scales in 15 rows..... 53
- Mid-body scales in 17 rows..... 57
53. Body without cross-bands..... 54
- Body pattern of alternate black and white cross bands..... Vernicella annulata (Bandy Bandy)
54. Belly never pink, red or orange..... 55
- Belly pink, red or orange..... Cacophis squamosus (Golden-crowned Snake)
55. Belly black or reddish-brown; distinctive contrasting markings on the nape..... 56
- Body light grey, brown or olive; no distinctive markings on the nape..... Damania psammophis (Yellow-faced Whip Snake)
56. Body rich brown; head black with a red or orange spot on the nape..... Furina diadema (Red-naped Snake)
- Body and head steely black; a narrow white or cream bar across the nape..... Cacophis krefftii (White-naped Snake)
57. Body black above, bright red or salmon-coloured below..... Pseudechis porphyriacus (Red-bellied Black Snake)
- Body brown or grey above (with numerous black cross bands in juveniles), cream or yellow with orange spots below..... Pseudonaja textilis (Eastern Brown Snake)

NEW MEMBERS

- Mr. R. Forsyth - 11 Melaleuca Drive,
ST. IVES. N.S.W. 2075
Interests: General.
- Mr. & Mrs. R. Fraser - 1/34 Boronia Street,
SAWTELL. N.S.W. 2452
Interests: All aspects of Herpetology.
- Mr. B. Hannan - 235 Bilsen Road,
WAVELL HEIGHTS. QLD. 4012.
Interests: Squamata.
- Mr. T. Harriott - 39 Campbell Avenue,
DEE WHY. N.S.W. 2099.
Interests: Dragons.
- Mr. G. Hawkins - 11 Wisdom Street,
GUILDFORD WEST. N.S.W. 2161.
- Mr. R. Lahey - 116 Milson Road,
CREMORNE. N.S.W. 2090.
Interests: All aspects of Herpetology.
- Mr. G. Lake - 14 Trevellyan Street,
CRONULLA. N.S.W. 2230.
Interests: Squamata.
- Mr. I. McLeod - 67 Johnson Street,
KIAMA DOWNS. N.S.W. 2533.
Interests: Pythons.
- Mr. M. McSkimming. - 44 Robertson Street,
GUILDFORD WEST. N.S.W. 2161.
- Mr. F. Maaten - 40 Nathan Street,
FERNTREE FULLY. VIC. 3156.
Interests: Snakes and Lizards.

NEW MEMBERS (Contd)

Miss N. Percival - 66 Sutherland Road,
BEECROFT. N.S.W. 2119.
Interests: Lizards and Tortoises.

Mr. N. Perkins - 82 Evans Road,
DUNDAS. N.S.W. 2117.
Interests: Reptiles in General.

Miss J. Sherwin - 2 Trelawney Street,
THORNLEIGH. N.S.W. 2120.

Mr. R. Sullivan - 7 John Street,
BEECROFT. N.S.W. 2119.
Interests: Pythons.

Mr. S. Tuckett - Nathalia Reptile Park & Zoo,
Bromley Street,
NATHALIA. VIC. 3638.
Interests: Reptiles.

AUSTRALIAN ANIMAL TECHNICIANS' ASSOCIATION

An exchange of magazines has been arranged between the Australian Animal Technicians' Association and our Society. The A.A.T.A.'s. magazine "Whytalla" is available for members through the Library. Any members who are interested in the work of the A.A.T.A. can either see the committee or contact the A.A.T.A. direct at the following address:-

Mr. Jim Tye,
Editor,
"Whytalla",
C/- Box 123,
P.O. CASTLE HILL. N.S.W. 2154.

ULCERATIVE STOMATITIS

by Miss J. Tilbrook

Ulcerative stomatitis (mouth rot, canker or oral thrush) was diagnosed and cured in a 26" (66 cm) female Gippsland Water Dragon (*Physignathus lesueurii howitti*). Because the method of treatment differed from that usually carried out in Australia and because stomatitis is a common disease of captive reptiles, I felt it may be of some interest to members. The problems of diagnosis are also included.

In May, 1972, a small 5" Tympanocryptis lineata tetrephora, which was in good condition and feeding well, was bitten on the jaw by a 5" baby bluetongue. The mouth became infected and the lizard had to be destroyed.

On the 8th June, 1972 a baby 7" bearded dragon which had been hand-fed, but eating well and in good condition, came down with what I believed to be food poisoning. It had a distended swollen belly, its mouth partly open, its eyes shut and its shoulders rounded. Since all my lizards had vomited that evening I assumed that the food was to blame.

10/6/72, long after the other lizards had recovered, this dragon remained ill. Its hunched appearance and bulging, distorted head led me to suspect hypervitaminosis A, especially since the lizard had been fed much liver, a food rich in Vitamin A. Vitamin supplementation was stopped. Constipation was evident, though when passed the faeces were of normal consistency, and yellow.

12/6/72, I noticed the lizard had a clear nasal discharge and fluid along the lips.

13/6/72, plugs formed in the nose, and when removed, clear liquid ran out. The lizard had trouble breathing, its mouth was gaping, and it was using its throat to assist with breathing. These symptoms all suggested pneumonia, a common complaint of captive reptiles, and for the first time a positive diagnosis was given. The lizard was given water by stomach tube as it had started to dehydrate and lose weight.

14/6/72, the final and correct diagnosis was made, when a thick, cauliflower-like growth was seen to extend on the inner mouth and down to the throat: ulcerative stomatitis, without a doubt. Gave lizard much water by tube as rapidly emaciating.

This growth had developed rapidly, as I had checked the mouth when the lizard first became ill.

16/6/72, found reference in an American Veterinary Journal to "mycotic pneumonia"; a disease with the mouth growths of stomatitis, yet accompanied by pneumonia, and caused by a fungus. Took nasal and pharyngeal swabs and plated them onto culture medium to try and grow this fungus if present.

Tetracycline treatment was advised for both ulcerative stomatitis and mycotic pneumonia. Tetracycline was not available, but a similar broad spectrum antibiotic, chloramphenicol, was. In spite of the lizard being in an advanced state of the disease, the drug was administered. It should have been injected intramuscularly but because of the small size of the lizard, was injected intraperitoneally. Only a drop was given, and even that turned out to be an overdose, for the lizard immediately went flaccid and death seemed imminent. Kept the lizard hot (above 70°F) so the drug would circulate, and continued to give water, electrolyte and glucose solution by stomach tube in an attempt to reverse the dehydration. This perked the lizard up a little each time, but it relapsed. Within the space of a few hours the lizard's eyes had sunk out of view into its head. Vaseline was put over the eyes to prevent further drying out, and the lizard was soaked in wet tissues. A wet plug was put in the mouth to keep it moist.

17/6/72 - 1.30 a.m., the lizard appeared to recover a little, moving around, and resisting handling and examination. At 3.00 a.m., for no apparent reason, it stopped breathing. Artificial resuscitation revived it, and it breathed regularly, easily, and appeared stronger.

At 5.00 a.m. the lizard was dead.

Examination of the culture plates was disappointing. No pathogenic fungus or bacteria could be isolated. Microscope slides and stains of lung smears appeared negative. The mouth growths were plated onto Saboauraud's agar, but no fungus grew. *Proteus* was the only bacteria isolated and since this organism is a common mouth inhabitant, was ignored. The lungs appeared frothy and pieces sank when dropped into water, indicating pneumonia. Post-mortem diagnosis was stomatitis and pneumonia, suggestive of mycotic pneumonia.

On 6/7/72, I realized my female Gippsland Water Dragon (27") had been listless and dopey for several days. She was in reasonable condition, eating well, but still being hand-fed (i.e. food placed in mouth). From my experience with the baby bearded, I immediately examined her mouth. A small yellow growth was seen on the front right lower jaw between the teeth and the lip. This growth appeared along a rupture in the tissue.

Taking no chances, .025 ml of chloramphenicol suspension was injected into the muscle at the base of the tail. Except for rapid breathing, the injection did not affect her.

7/7/72, the lizard appeared brighter and alert in the morning, but when I came home from Uni in the afternoon, showed a clear fluid flowing from the nose and mouth. She also assumed the listless, hump-backed position that the baby bearded had. Obviously the antibiotic had not been strong enough. 0.04 ml (double the initial dose) was given, and a sample of the nasal discharge and the mouth crusts taken to the Vet School and cultured on blood agar.

8/7/72. At this stage my supply of antibiotic had run out, and I could only purchase *Gloveticol*, a very concentrated painful and expensive solution of chloramphenicol. This I administered intra-muscularly at a rate of 25 mg per lb of bodyweight. The lizard weighed 14 ozs, so was injected with 0.20 ml and kept warm to keep the blood circulating.

9/7/72 injected 0.20 ml Gloveticol.

These injections obviously hurt, the lizard sitting still while the needle was introduced, but as soon as the solution hit her leaping up and often spontaneously defaecating. Then she would sit numbed, and rapidly breathing. The side of the tail injected was alternated, as hard swellings persisted after injection for 24 hours.

10/7/72, injected 0.20 ml Gloveticol

The lizard was active, drinking lots of water, the crusts had dropped off, and the cut healed. No further injections were given.

This time the results of the plating were positive. No fungus was found, but in the plate containing the crust a bacteria grew, which gave a positive oxidose test, and was identified as *Aeromonas*, probably *A. hydrophila*. Library research revealed that this organism, harmless to mammals, was pathogenic to cold-blooded animals, and had been found in America to be the cause of ulcerative stomatitis, pneumonia, and septicaemia in reptiles¹.

So the water dragon survived and I isolated my organism. Her complete recovery was not immediate, and not until the 1/9/72 had her droppings returned to normal; being loose, pinkish in colour, and unpleasantly sweet-smelling. She also appeared anaemic for several weeks after the illness, but this could be one of the side-effects of the drug, as could the faecal effect. As I write now, the lizard is putting on condition, active, healthy and feeding herself, so the outbreak should not recur.

In summary, it would appear that ulcerative stomatitis can be caused in reptiles due to some form of mouth damage, such as acquired through hand-feeding. Possibly it should be watched for in institutions where snakes are regularly milked for venom. Classically, the disease has been described as showing caseous or cheesy growths and ulcers in the mouth and throat. My experience shows that the disease is not as clearcut as it sounds and diagnosis may be confused until the later stages by complicating factors such as pneumonia.

G. Manning² states that *Salmonella* bacteria are usually the causative agent; I have demonstrated *A. hydrophila* may also be responsible. Work in the U.S.A. supports this. The usual treatment is to apply Terramycin or mild antiseptics topically. I have found that systemic treatment by injectible antibiotics (chloramphenicol 25 mg/lb daily) can be successful if the disease is caught early. However, in small reptiles topical treatment may be the only answer, as they are so small that satisfactory intra-muscular injections cannot be made. Wherever possible, injections should be used, as this would be less dangerous than putting toxic substances into the mouth. Malnutrition and lack of Vitamin C may contribute to the disease, so citrus fruits should be given. If not treated the disease may progress to involve the jaw-bones and teeth sockets, or develop into septicaemia. If the growths occlude the tear ducts these cannot drain into the mouth and the eye area swells. Ulcerative stomatitis results in death from starvation, as the reptile cannot eat.

1. "Infectious Diseases of Reptiles" Leonard C. Marcus V.M.D.,M.D.
Reprinted from Journal of American Veterinary
Medical Association, Vol.159, No. 11 pp 1626-1631.
2. From a talk "Diseases in Reptiles" at a Society Meeting
reprint by Geoff Manning.

LETTERS TO THE EDITOR

The statement made by Mr. Adams "A time saving way to feed snakes is to set aside the same night each week as the feeding night", is of dubious repute. All keepers that I know would undoubtably agree that the opposite is true, no one night can be set down to feed all specimens. There are too many factors involved to be so specific about feeding one night a week, whether the snake is hungry, if it is warm enough, whether it is opaque, to name but a few.

"If a snake refuses to eat and starts to lose condition it is a good idea to let it go, provided it is released in an area where the species occurs naturally. Otherwise give it to someone who THINKS he can feed it". Surely this is a rather irresponsible attitude for a keeper to take. The practice of palming a poor specimen off on someone else is far too common and as for returning it to the wild, it would seem rather doubtful if it would survive because an animal in poor condition is easy prey.

The comments made on the virtues, if one could call them that, of live feeding. Live feeding is at times a dangerous practice and should be viewed with a cautious eye, as quite a few snakes have been rather badly chewed or even killed by rats and mice left in the cage, a friend even had a juvenile brown snake killed by a small skink. The so called advantage of using live food in that the food animal can be removed and kept if the snake does not eat it, is easily duplicated by freezing a dead food item and is therefore cheaper than continuing to feed a live one.

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SNAKES AND LADDERS

"During the flooding after cyclone Daisy in Brisbane in early 1972, I obtained 3 juvenile Green Tree Snakes (*Dendrelaphis punctulatus*).

One of these snakes showed voracious eating habits, consuming every food item placed in the cage. It would always beat the other two to the food and quite often took frogs right out of the other snake's mouths.

The slightest movement would attract it - occasionally blades of grass in the cage when accidentally moved were struck at.

However, the variety of food it consumed was most interesting. In the 3 months I had the snake it consumed the following:-

Green Tree Frog:	<i>Hyla caerulea</i> <i>Hyla rubella</i>
Peronis Ground Frog:	<i>Limnodynastes peronii</i>
Common Ground Frog:	<i>Limnodynastes tesmaniensis</i> <i>Crinia sp</i>
Common Grass Skink:	<i>Leiolopisma guchenoti</i>
Collared Skink:	<i>Ablepharus boutonii</i> <i>Lugosoma verreauxii</i>
Prickly Gecko:	<i>Heteronotia binoei</i>

Unfortunately this snake was involved in an accident - it was knocked from a friends hand by a truck". - B. Lyon.

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"On the 13th July, 1972 a Diamond Python which is in my collection was discovered to have mouth canker. I contacted a Vet, who suggested I use a medication called Socatyl which is available in a tube for \$1.50. I did not remove the cheese substance and applied the Socatyl twice daily over the infected areas for a fortnight. By the 31st July, 1972 it had cleared up completely". - B. James.

THE AUSTRALIAN HERPETOLOGICAL SOCIETY

This Society was formed to enable people interested in reptiles and herpetology to meet regularly together.

The aims of the Society are:-

- (1) To collect and exchange information on all aspects of Australian reptiles and amphibians.
- (2) To encourage the study of reptiles and amphibians - both in their natural state and in captivity.
- (3) To promote a sane and reasonable attitude to reptiles and amphibians among the general public.
- (4) To organise field work in all parts of Australia and to render all possible assistance to members on collecting trips away from their home territory.

Authors of articles contained in the Journal are responsible for the opinions expressed and for the accuracy of the facts in their contributions.

